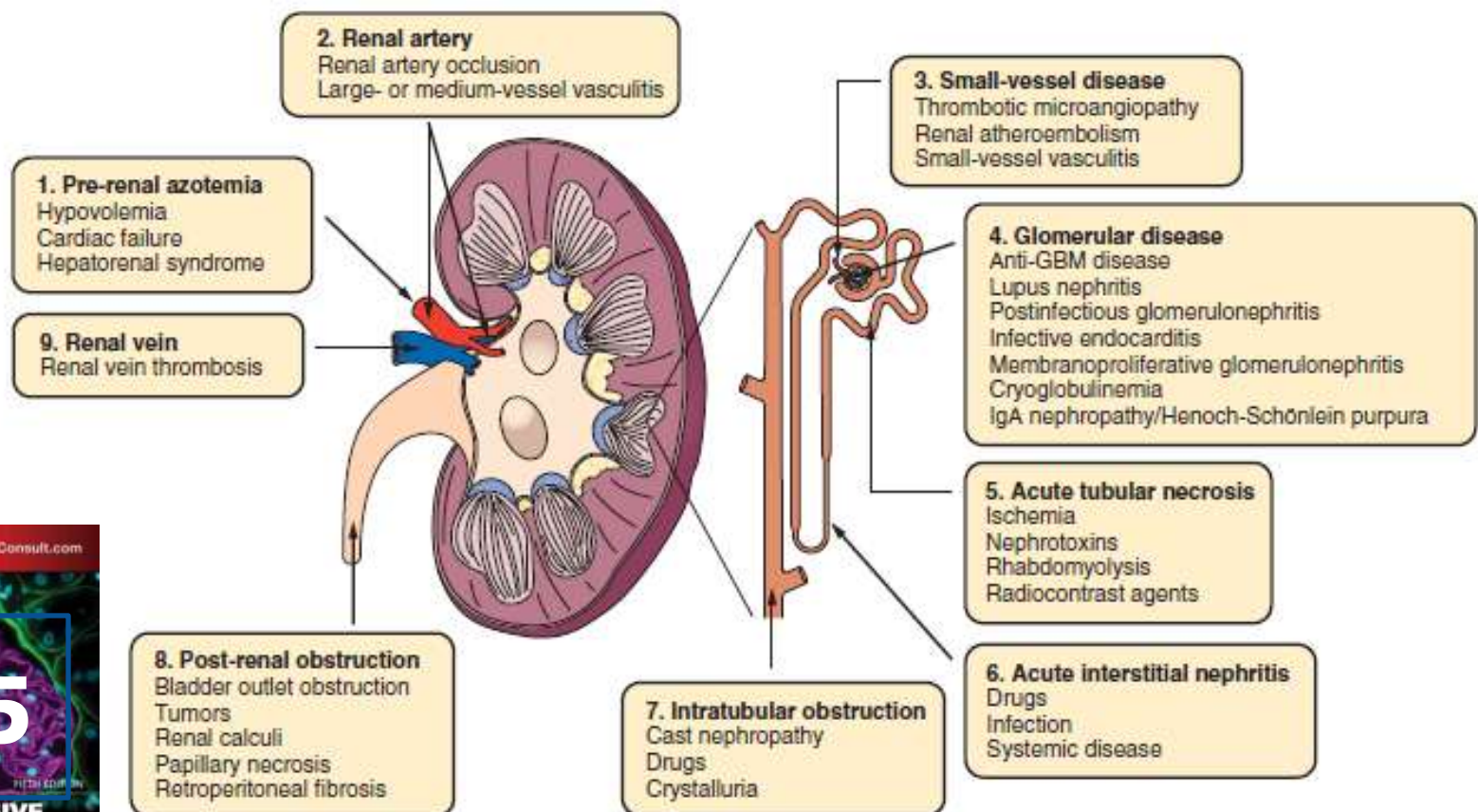


Acute Kidney Injury: Etiology

Hussein Sheashaa, MD

Professor of Nephrology, Urology and Nephrology Center and Director of
Medical E-Learning Unit, Mansoura University and Executive Director of
ESNT- Virtual Academy: <http://lms.mans.edu.eg/esnt/>

Etiology of AKI: An Overview

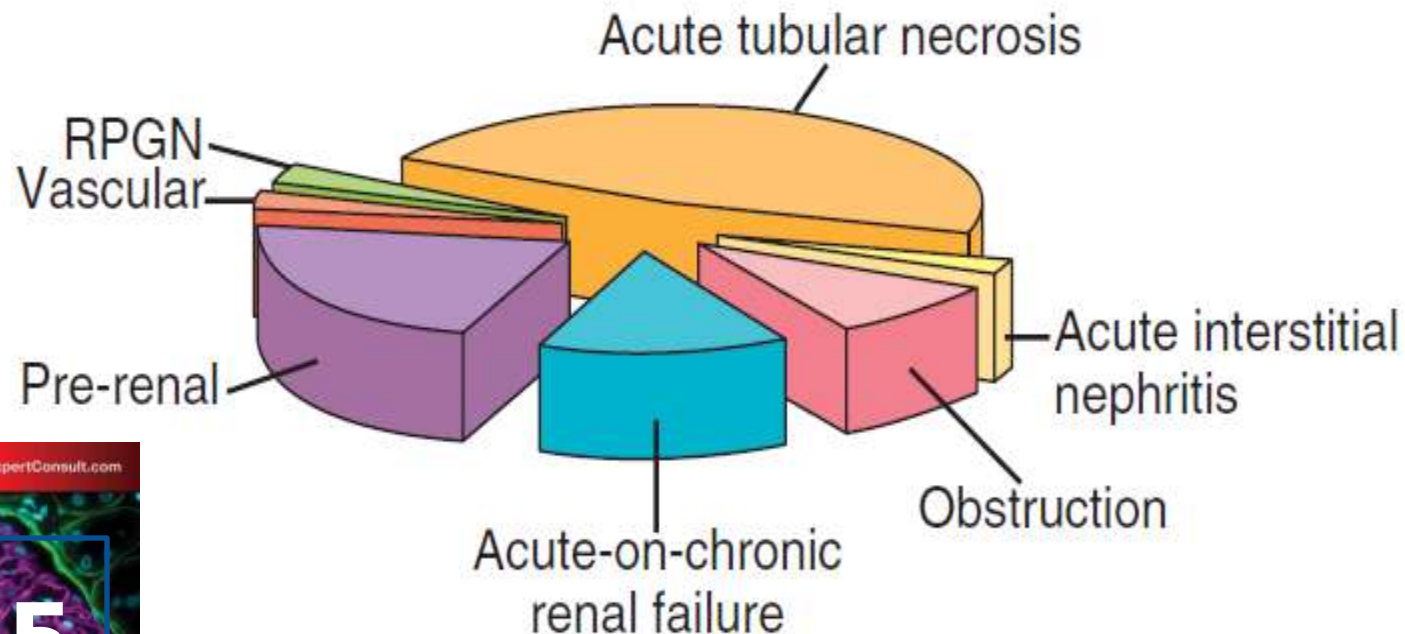


2015

COMPREHENSIVE
CLINICAL NEPHROLOGY

Richard J. Johnson
John Feehally
Jürgen Floege

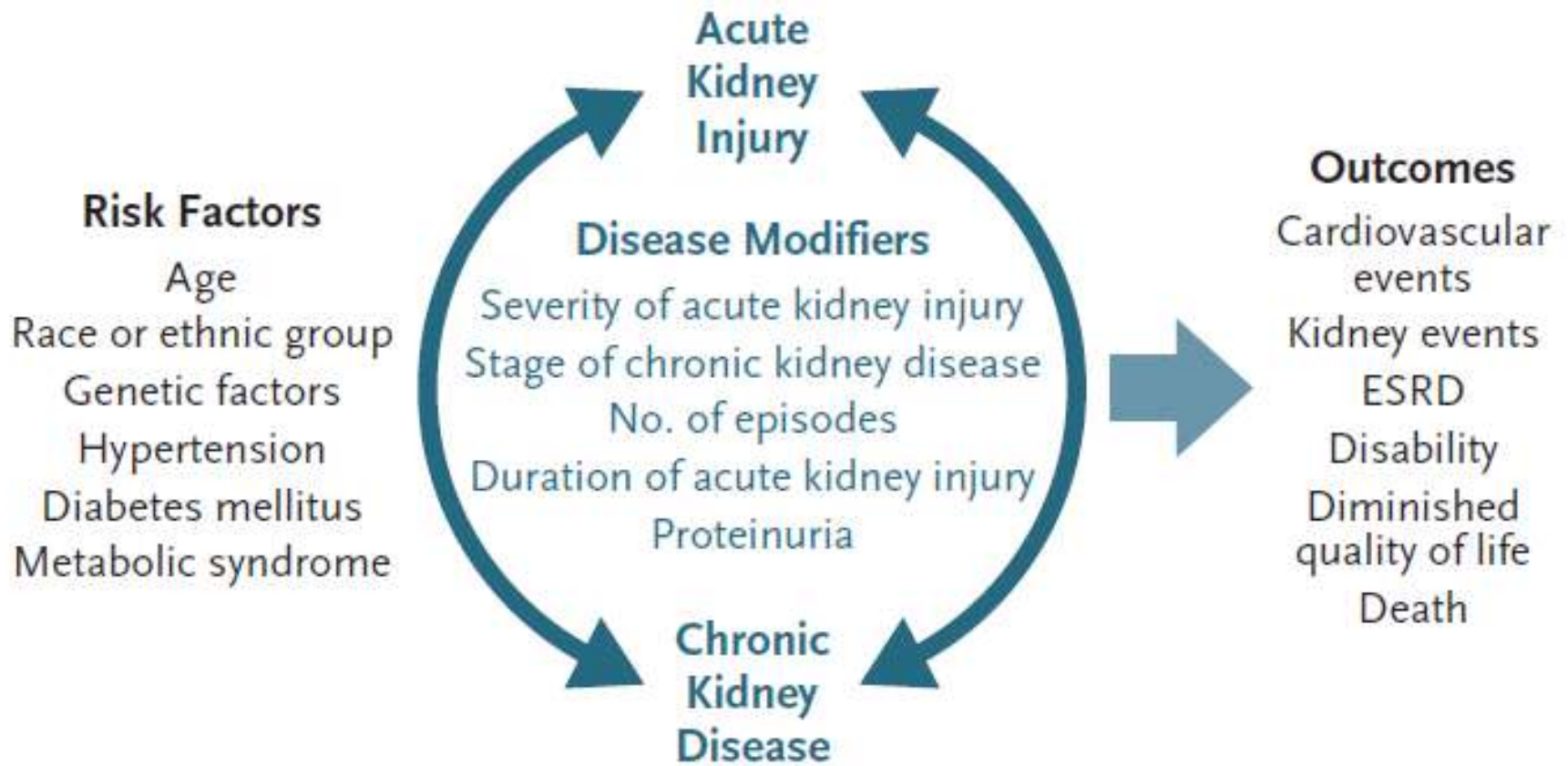
Etiology of AKI: In The Hospital Settings



2015

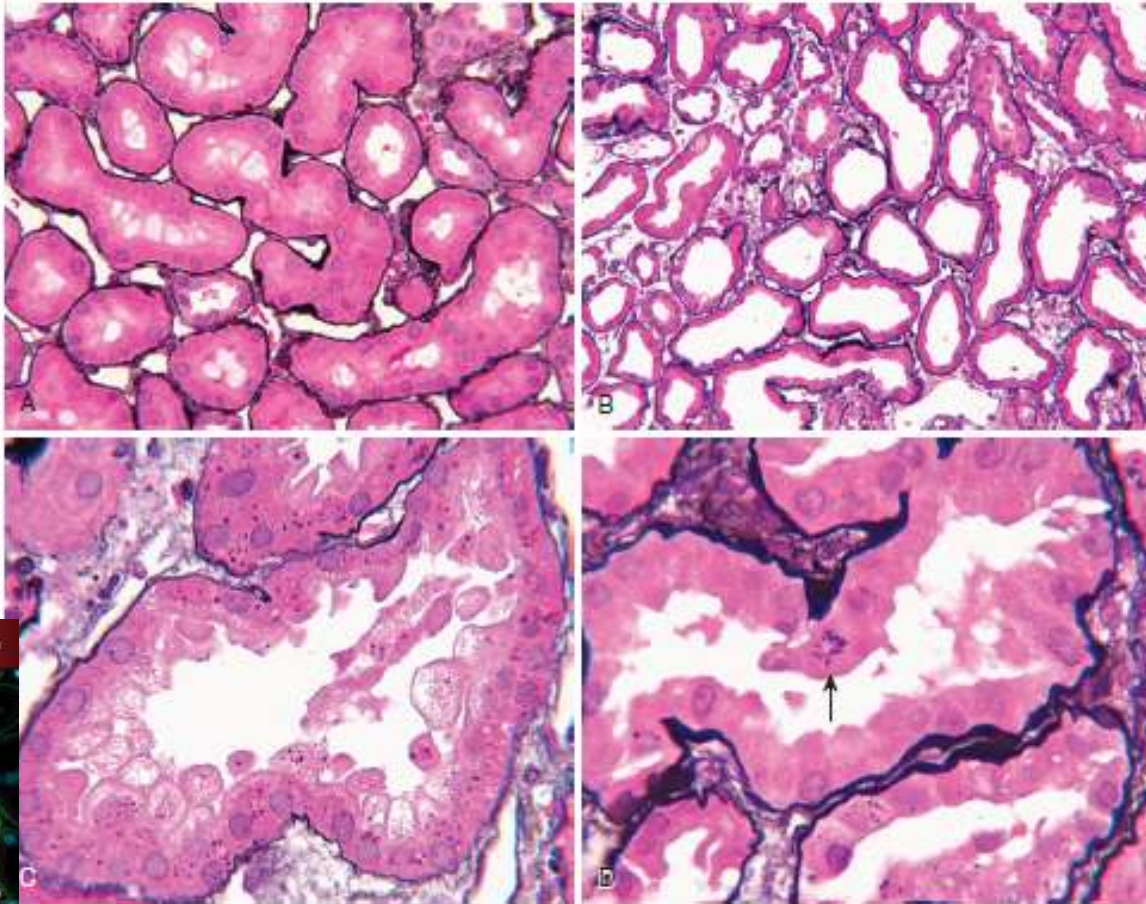
COMPREHENSIVE
CLINICAL NEPHROLOGY

Richard J. Johnson
John Feehally
Jürgen Floege



N Engl J Med July 3rd, 2014;371:58-66.

Pathology of AKI



2015

COMPREHENSIVE
CLINICAL NEPHROLOGY

Richard J. Johnson
John Feehally
Jürgen Floege

Drugs and AKI

Proton-pump inhibitor	Adjusted OR 3.2 (95% CI: 0.80–12.79)
High-potency statins	Fixed effect rate ratio: non-CKD 1.34 (95% CI: 1.25–1.43) CKD 1.1 (95% CI: 0.99–1.23)
Fluoroquinolones	RR 2.18 (95% CI: 1.74–2.73)
Phosphate-based purgatives (USA)	Adjusted OR 2.35 (95% CI: 1.51–3.66)
Fibric acid derivatives	Adjusted OR 2.4 (95% CI: 1.7–3.3)
NSAIDs/COX-2 inhibitors	RR 2.05 (95% CI: 1.61–2.60)
HAART therapy (Madrid/Spain)	7 episodes/100 patient-years
Calcium-channel blocker + clarithromycin	OR 1.98 (95% CI: 1.68–2.34) compared with azithromycin

NDT Advance Access published October 16, 2014

Nephrol Dial Transplant (2014) 0: 1–8
doi:10.1093/ndt/gfu326



Full Review

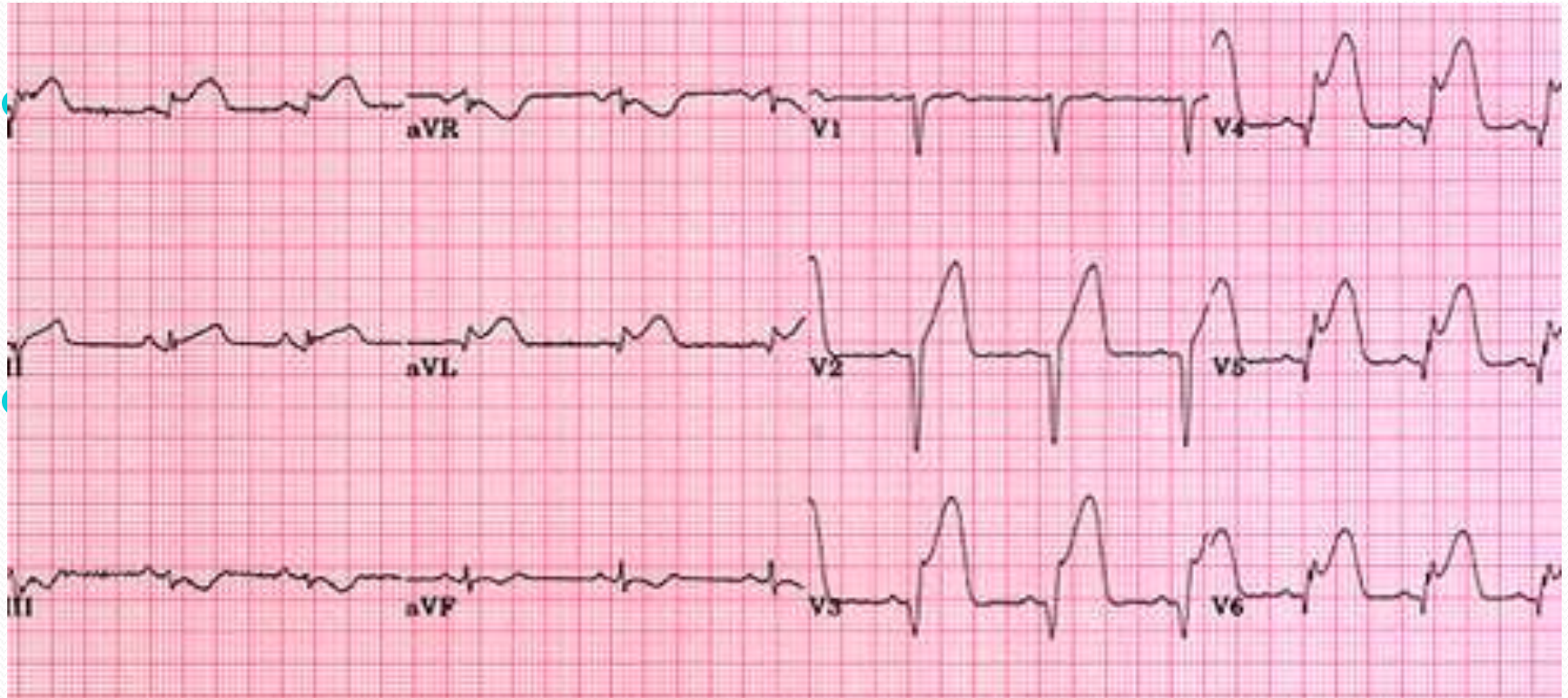
Changes in the aetiology, clinical presentation and management of acute interstitial nephritis, an increasingly common cause of acute kidney injury

Manuel Praga^{1,2}, Angel Sevillano¹, Pilar Auñón¹ and Ester González¹

¹Division of Nephrology, Hospital 12 de Octubre*, Madrid, Spain and ²Department of Medicine, Complutense University, Madrid, Spain

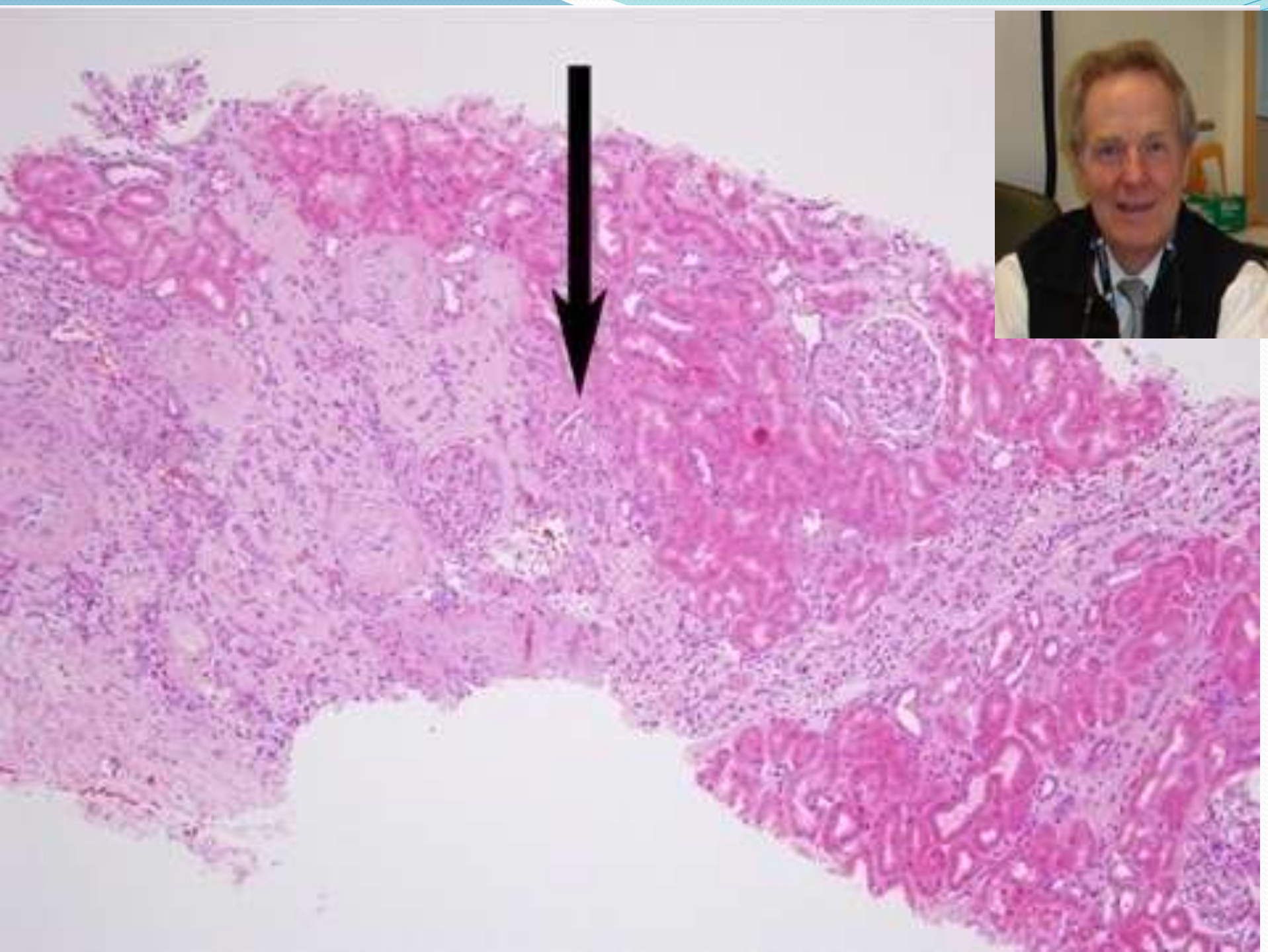
- (1) Rapid identification and withdrawal of the offending group
- (2) Early administration of corticosteroids (<5 days after diagnosis) unless rapid renal function recovery after drug withdrawal in mild cases.
- (3) Scheme of corticosteroid treatment:
 - IV Methylprednisolone pulses (250 mg each), for 3 consecutive days
 - Oral prednisone, 1 mg/kg/day for 1–2 weeks after IV pulses
 - Prednisone tapered down for 4–6 weeks
- (4) When renal function does not improve after 2 weeks of treatment, corticosteroids are discontinued more rapidly
- (5) In patients who relapse after corticosteroid discontinuation (after other causes of AIN have been excluded), mycophenolate mofetil, starting with 1.5–2 g/day and slowly reduced over 12–24 months. Corticosteroids administered at the lowest possible doses or withdrawn.

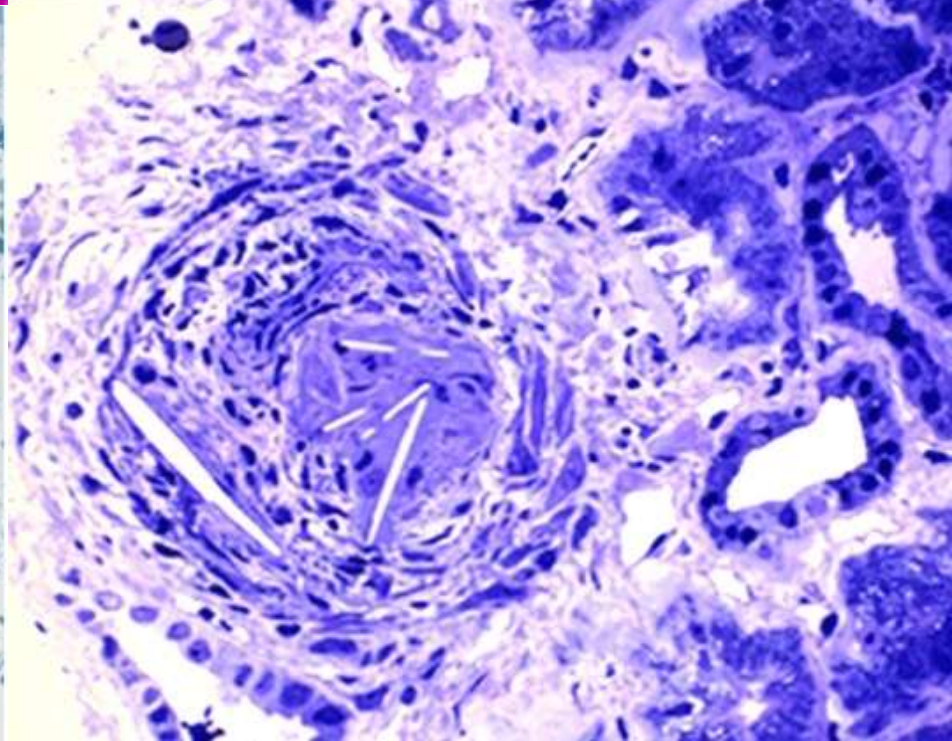
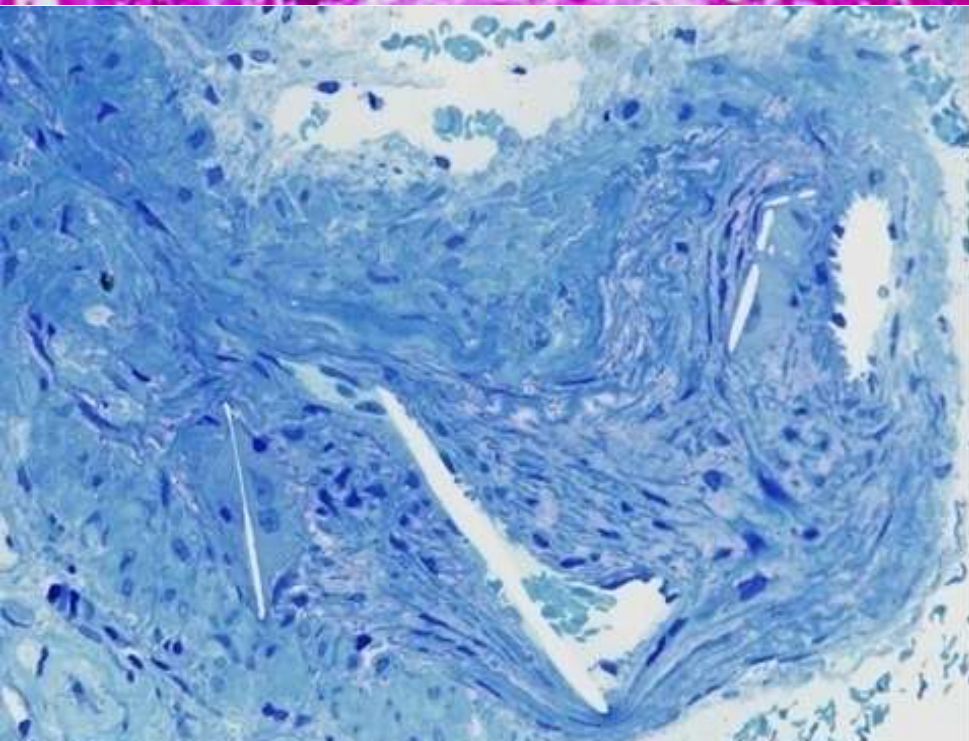
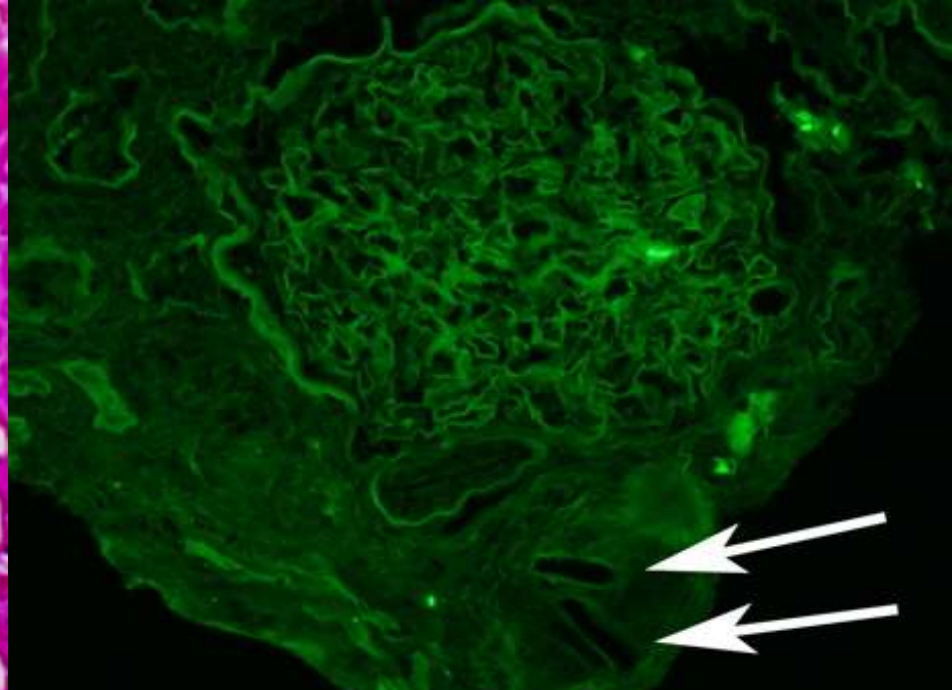
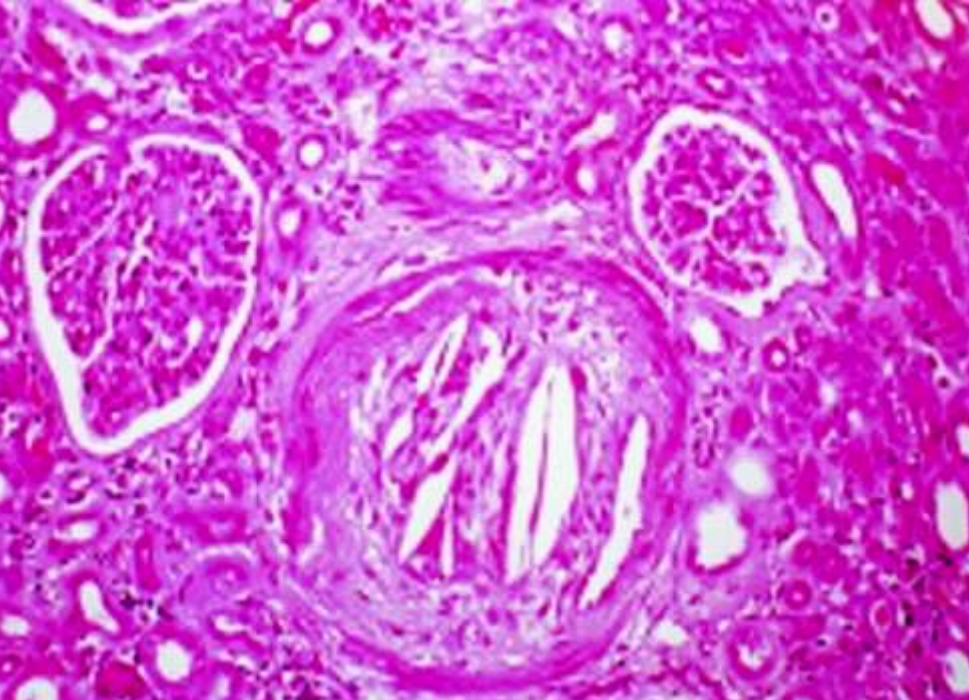
Case Scenario



What is Your Diagnosis?

- Coronary angiography and PTCA.
- 2 days after coronary angiography serum creatinine rose to 4.5 mg/dl





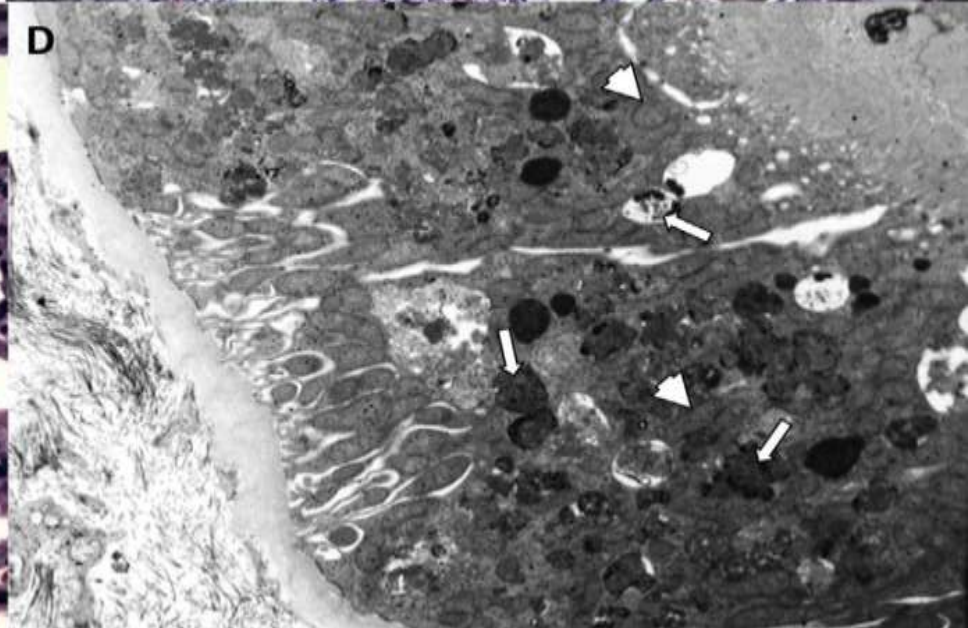
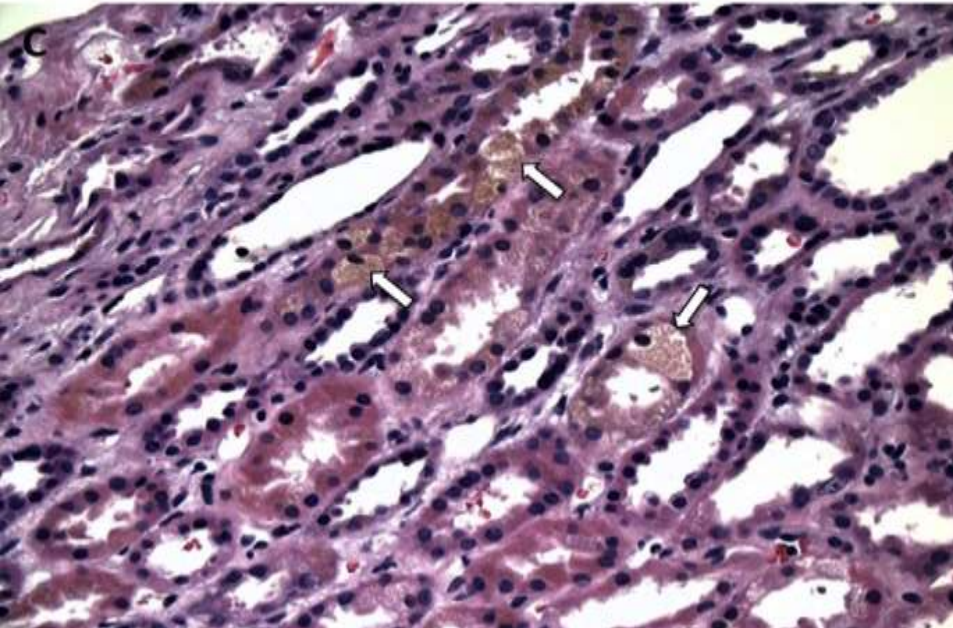
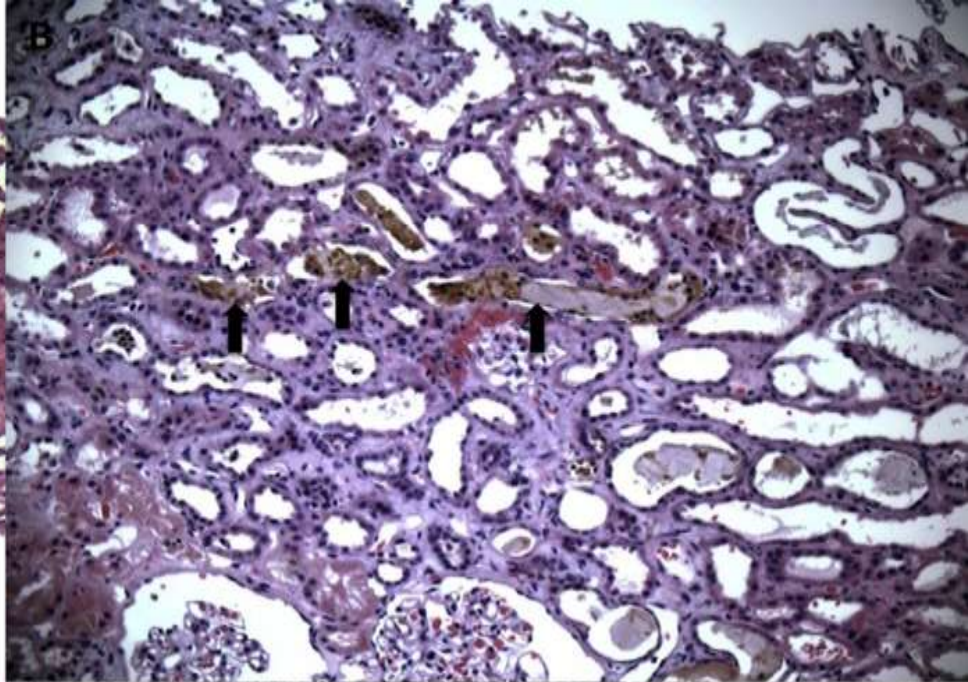
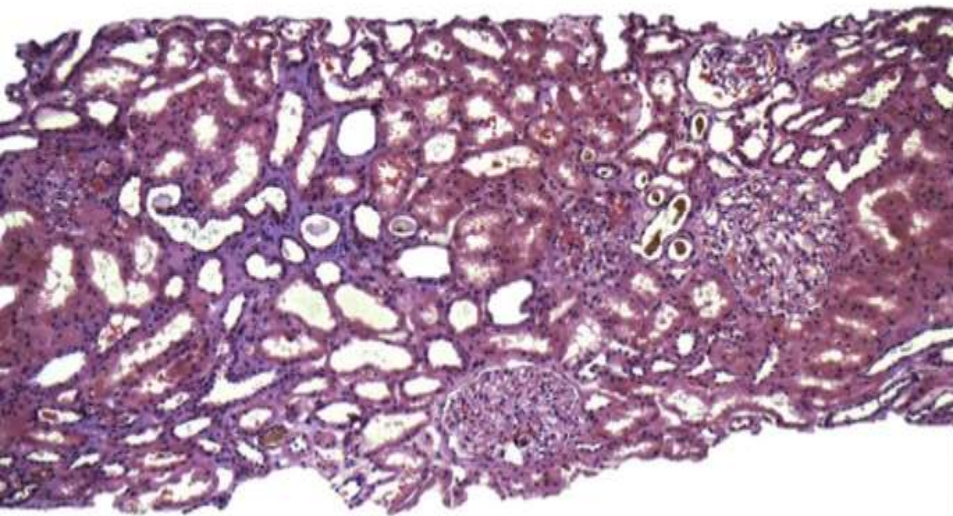
Case Scenario:

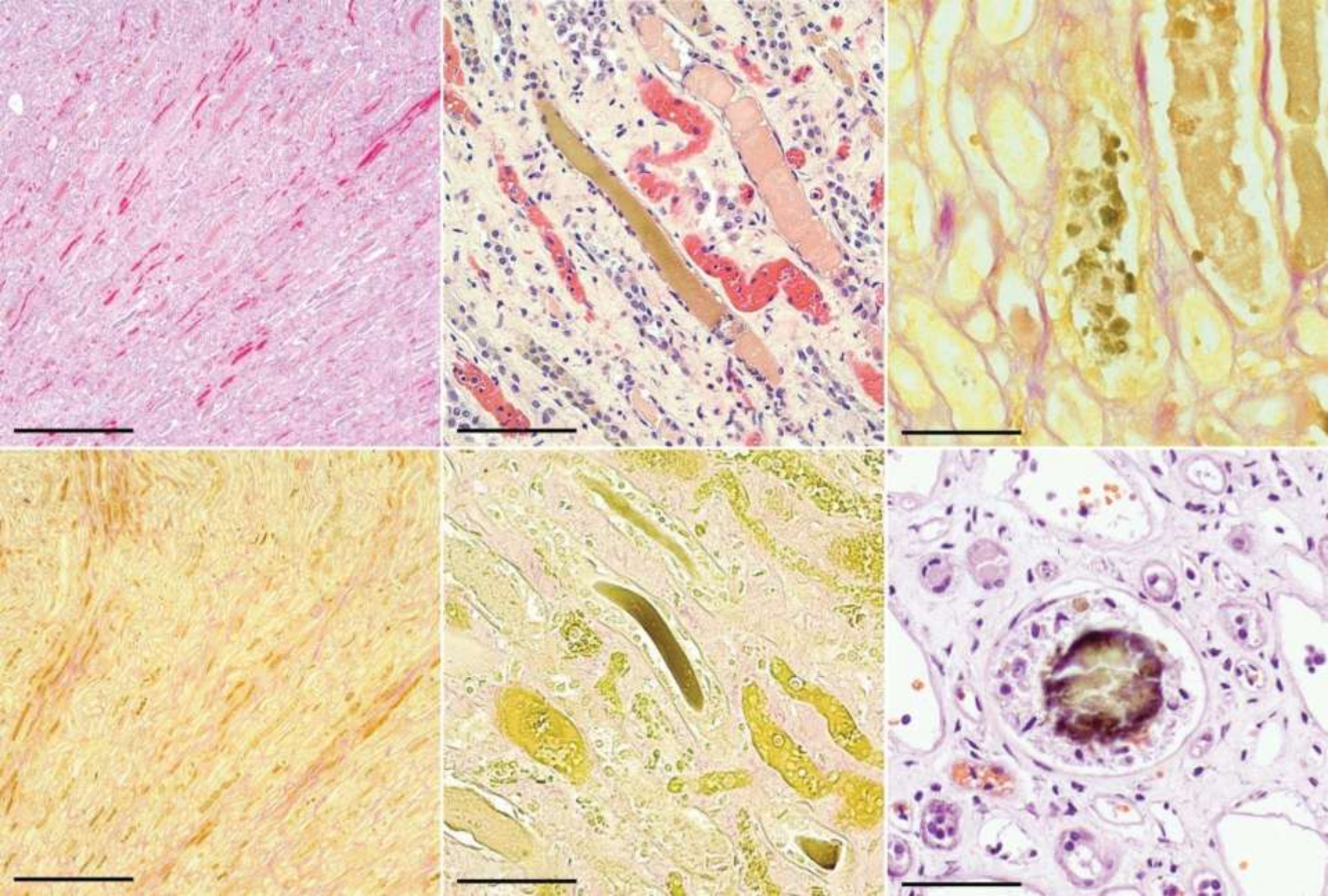
Bodybuilder Abusing Androgenic Steroids

Laboratory Values	Initial Presentation	Day 9	Day 24	Day 42	Day 52	Day 56	Day 59	Month 5
SUN (mg/dL)	13	11	11	18	20	31	32	30
Scr (mg/dL)	1.1	1.5	1.3	2.1	2.4	2.7	2.9	1.8
Total bilirubin (mg/dL)	11.8	16.3	36.1	44.9	47.9	42	40.5	0.5
AST (U/L)	289	50	48	52	41	44	26	32
ALT (U/L)	267	151	52	44	41	42	33	31
Alkaline phosphatase (U/L)	162	440	658	607	462	530	386	47
INR	1.1	1.1	1.3	2.25	1.08	1.05	1.3	1.03

Am J Kidney Dis. 2014;64(3):473-476

A

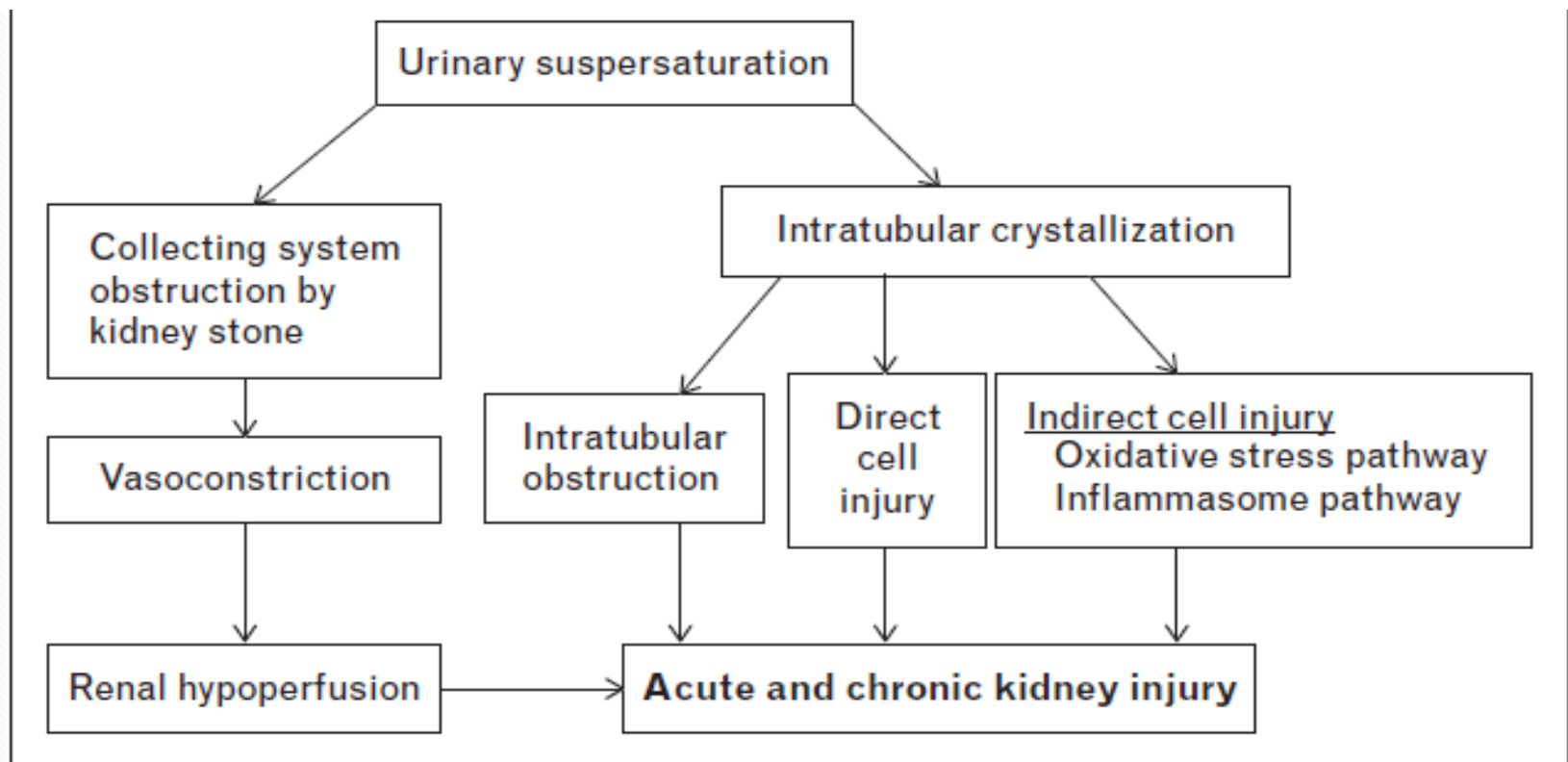




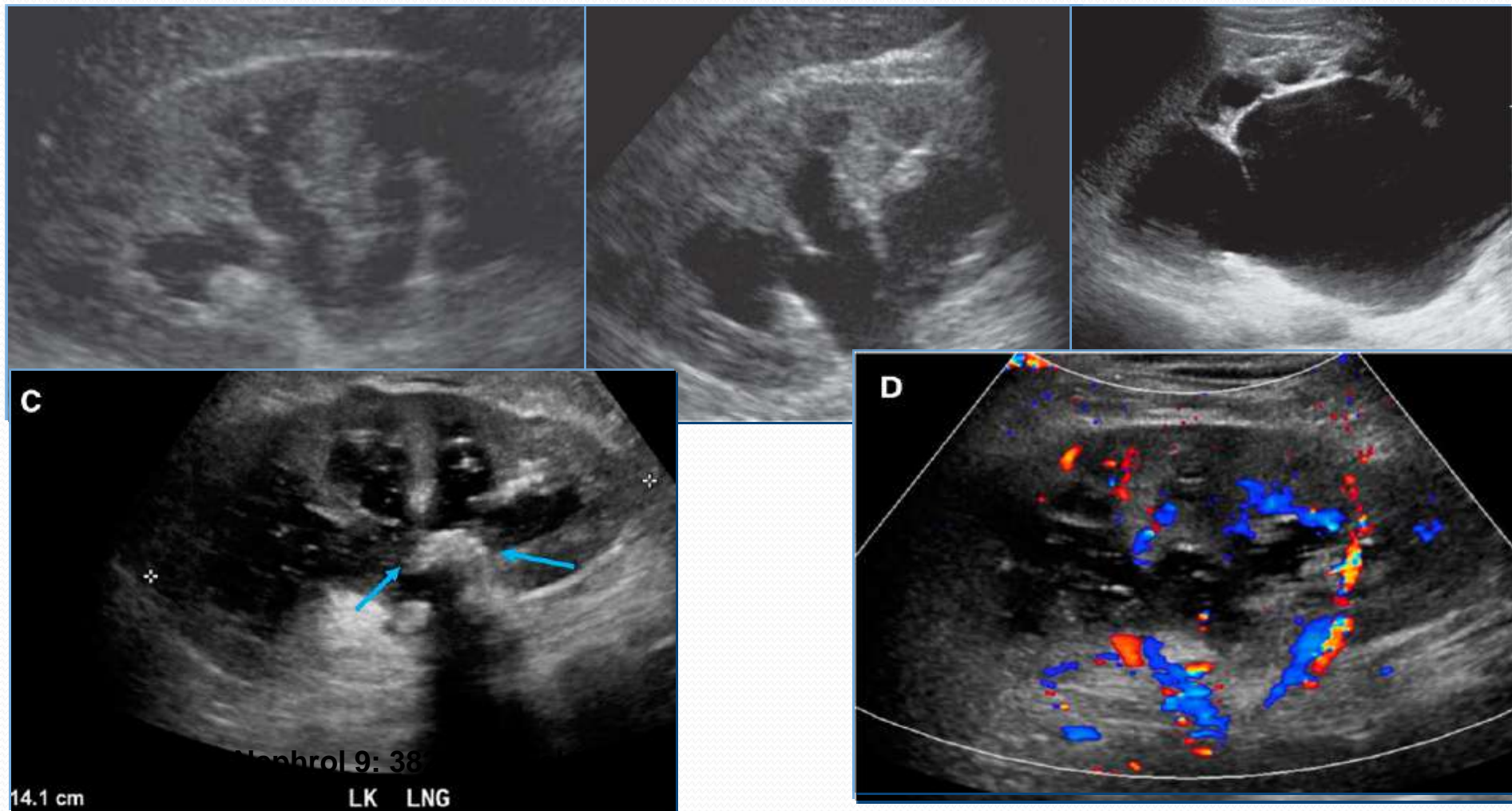


Acute and chronic kidney injury in nephrolithiasis

Xiaojing Tang^{a,c} and John C. Lieske^{a,b}



Ultrasound



Elective Urological Interventions Complicated by AKI

Procedures	No.	%
Segmental ureterectomy	1	0.7
Endoscopic ureteric biopsy	1	0.7
Total penectomy	1	0.7
Total pelvic exenteration	1	0.7
Nephrostomy removal	1	0.7
Flexible cystoscopy	1	0.7
ESWL ^a	1	0.7
PCNL ^a	1	0.7

Nephro Urol Mon. 2013 November; 5(5): 955-61.

Non Elective Urological Interventions Complicated by AKI

Primary Diagnoses	No.	%
Retention of urine - benign cause	58	21.2
UTI, peno-scrotal infections, sepsis	41	15.0
Obstructing ureteral/renal calculi	34	12.5
Bladder Cancer	27	9.9
Hydronephrosis	24	8.8
Hematuria/clot retention	3	1.1
Hematuria	17	6.2
Non-lithiasic benign hydronephrosis (PUJO, ureteral strictures/ compression)	15	5.5
Prostate Cancer	11	4.0
Mechanical complications of genitourinary stents/malfunction of urostomy	14	5.1

Case Scenario

Laboratory Test	Value
Serum creatinine (mg/dl)	6.5
BUN (mg/dl)	78
Serum electrolytes (mEq/L)	
Na ⁺	127
K ⁺	5.5
Cl ⁻	84
HCO ₃	22
Glucose (mg/dl)	125
Serum albumin (g/dl)	3.8
Urine electrolytes (mEq/L)	
Na ⁺	55
Cl ⁻	62
Urine creatinine (mg/dl)	28

RENAL FAILURE

<http://informahealthcare.com/rnf>
ISSN: 0886-022X (print), 1525-6049 (electronic)

Ren Fail, 2014; 36(7): 1169–1176
© 2014 Informa Healthcare USA, Inc. DOI: 10.3109/0886022X.2014.926758

informa
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STATE OF THE ART REVIEWS

Osmotic nephrosis with mannitol: review article

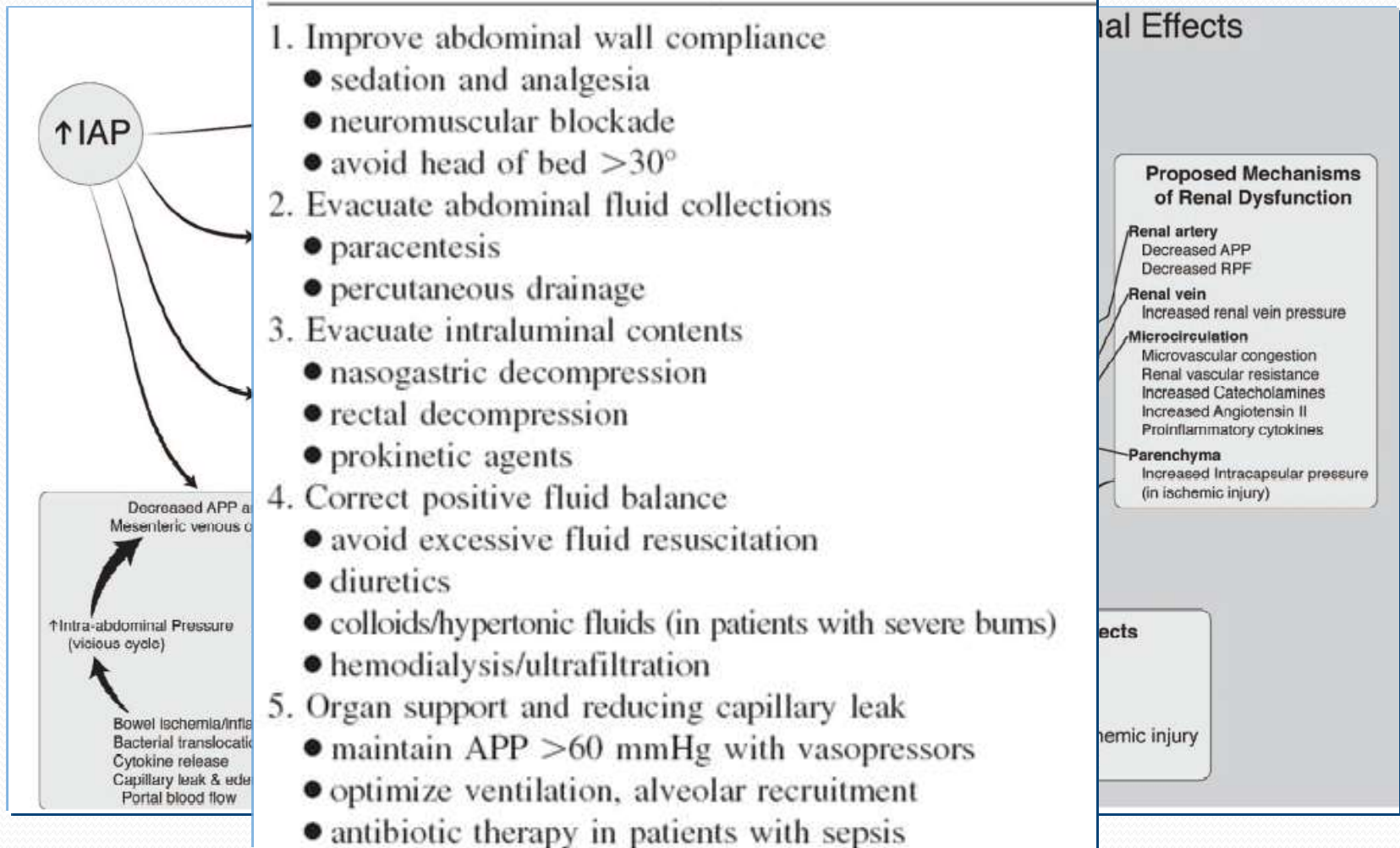
Ali Zohair Nomani¹, Zahid Nabi¹, Humayun Rashid¹, Jamal Janjua¹, Hanna Nomani², Azer Majeed¹,
Sohail Raza Chaudry¹, and Ayesha Saad Mazhar¹

¹Section of Nephrology, KRL Hospital, Islamabad, Pakistan and ²RMC, Rawalpindi, Pakistan

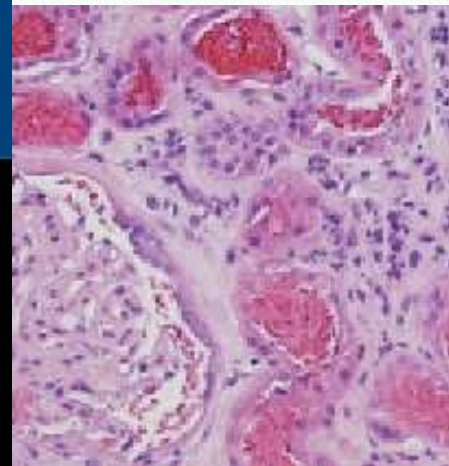
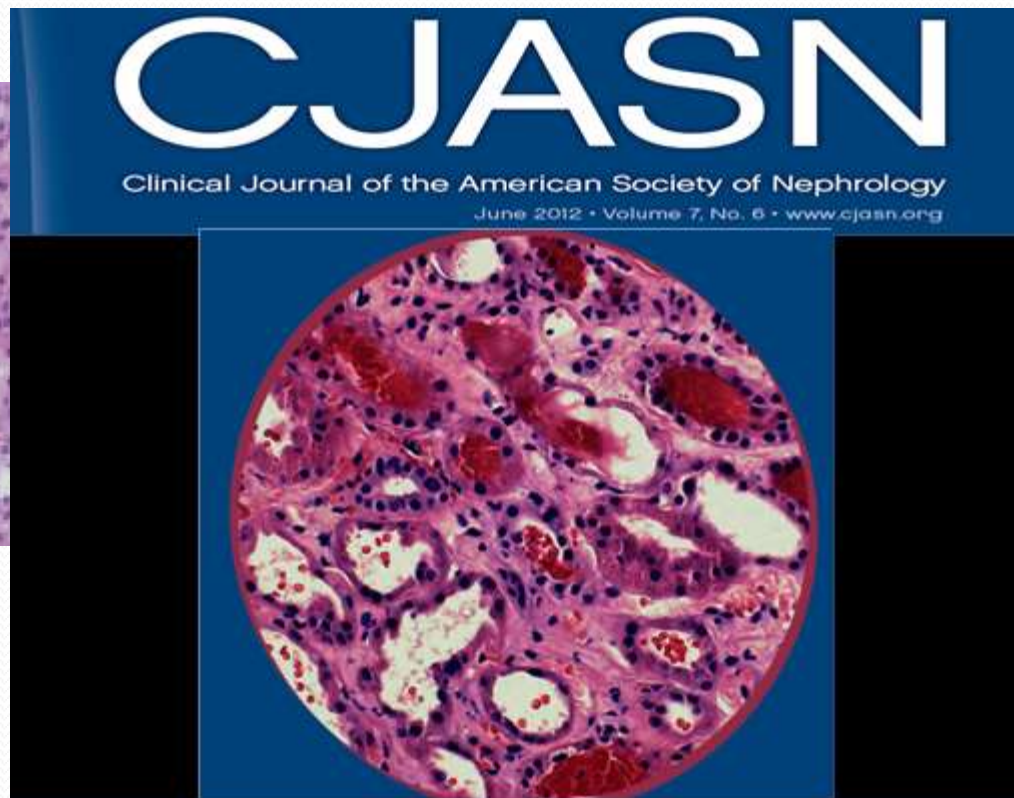
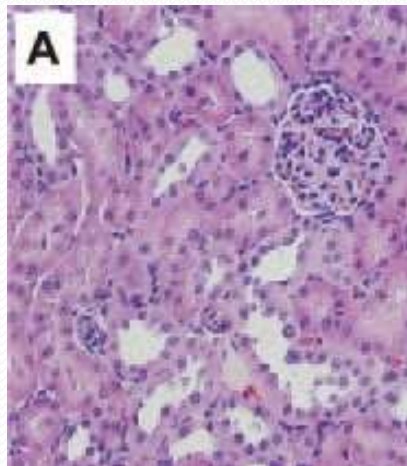
Case Scenario

A 43-year-old woman is admitted with necrotizing pancreatitis believed to be because of gallstone pancreatitis. She is intubated and mechanically ventilated. Her physical examination is notable for tense ascites that has developed over 3 days. She has minimal peripheral edema. She is noted to have increasing airway pressures and requires increasing dosages of NE to maintain a mean arterial pressure of 60–65 mmHg. Her central venous pressure is 14 mmHg and her urinary output is 10–15 ml/h. The results of her laboratory studies are as follows: serum sodium, 129 mEq/L; serum potassium, 4.9 mEq/L; serum chloride, 95 mEq/L; total CO₂, 14 mEq/L; BUN, 37 mg/dl; and serum creatinine, 2.6 mg/dl. Urine creatinine is 132 mg/dl, and urine sodium is 10 mEq/L. Serial urinary bladder pressures have increased from 24 to 29 mmHg.

IAH-ACS

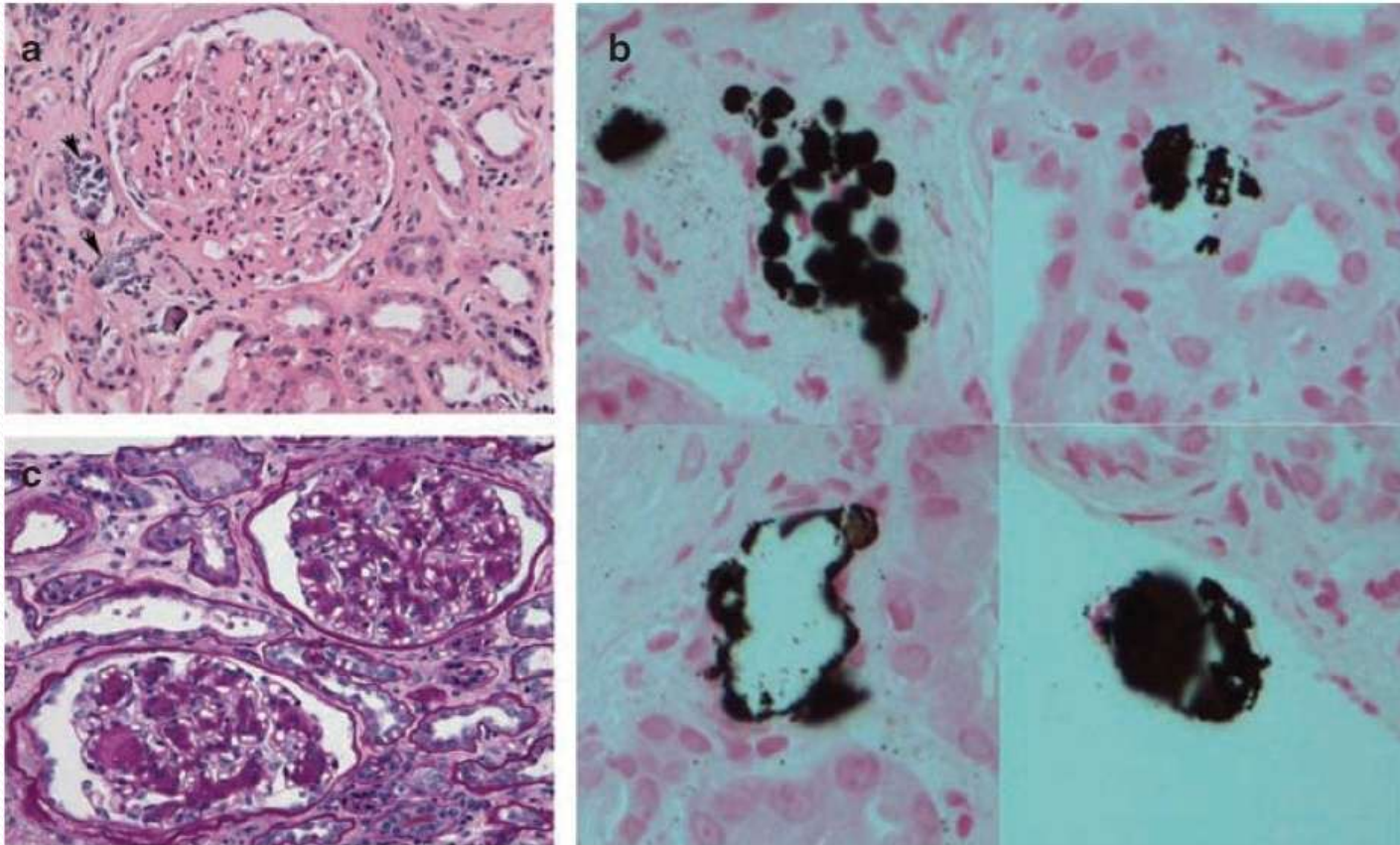


A Patient Receives Warfarin: Creatinine Rose From 2 To 3. INR 3.5



J Am Soc Nephrol 22: 1856–1862, 2011.

Acute Phosphate Nephropathy



Sodium Phosphate Enemas:

Complications

- Acute renal failure: **All**
- Urgent hemodialysis: **2**
- Deaths: **5**
- Prolonged hospitalization: **3/6 (survivors)**

“Any elderly patient with an atonic bowel for whatever reason and a reduced GFR should not receive a phosphate-containing enema.”

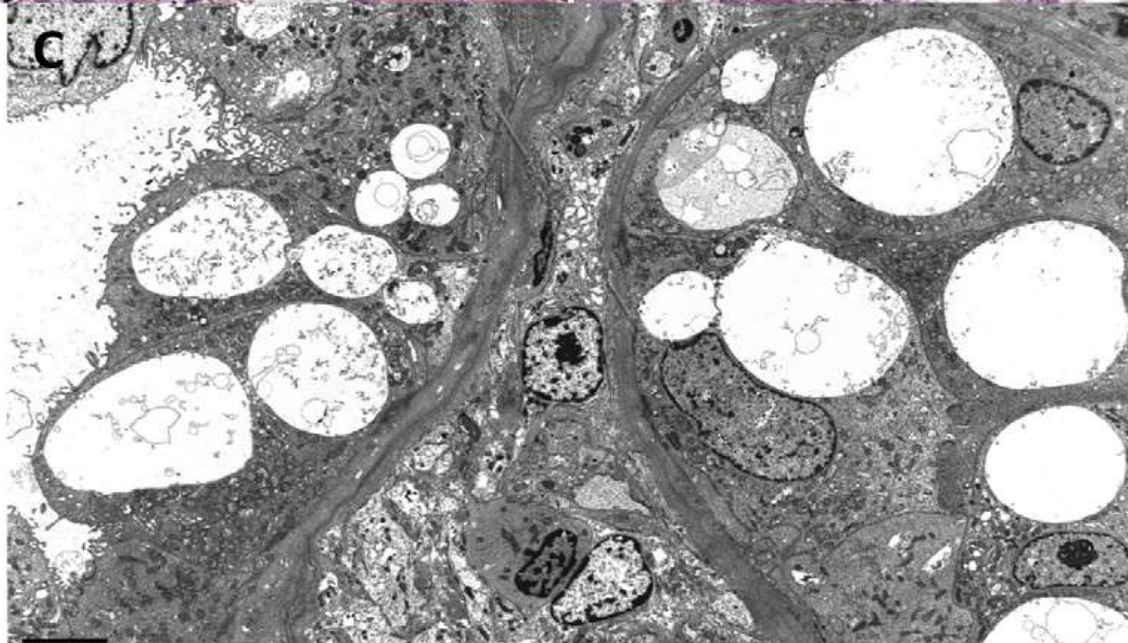
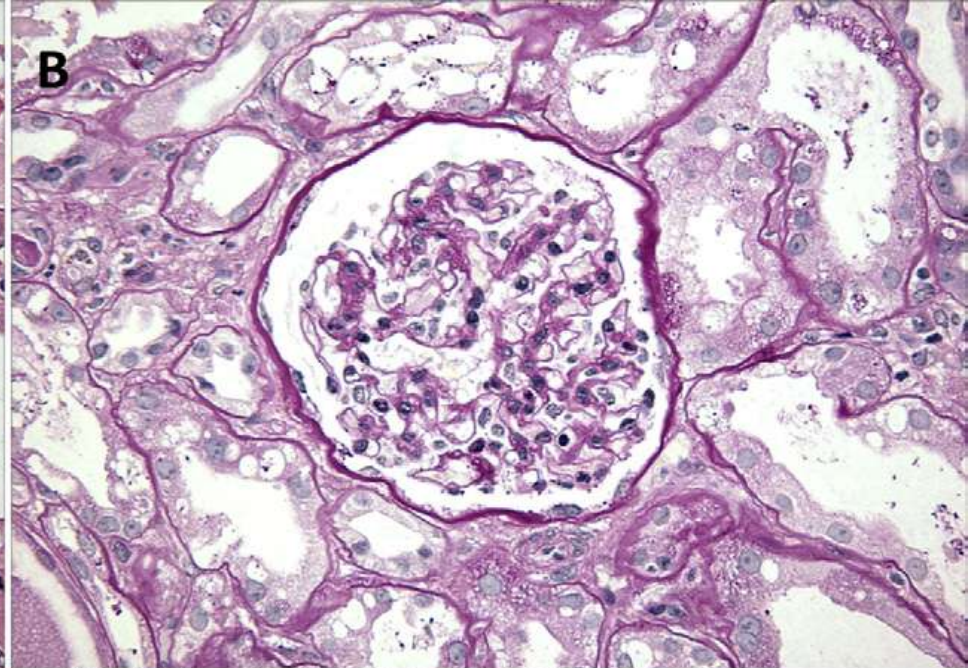
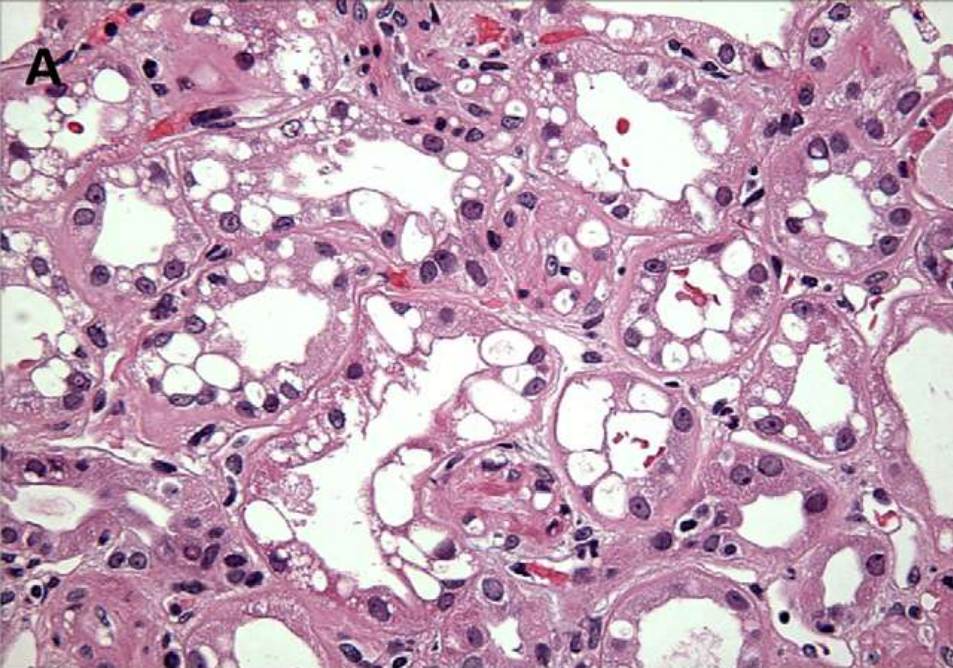
*- Dr. Yaacov Ori & colleagues
Rabin Medical Center
Petah-Tikva, Israel*

Extreme weakness and AKI

Serum Test	Reference Range	Premorbid Data	Initial Data	Follow-up Data at 6 wk
Urea nitrogen (mg/dL)	0-31	31	91	
Creatinine (mg/dL)	0-1.11	1.57	13.0	
eGFR (mL/min/1.73 m ²)	>60	40	3	
Sodium (mEq/L)	135-145	143	138	
Potassium (mEq/L)	3.5-5.1	5.1	1.8	
Chloride (mEq/L)	98-110	109	105	
Carbon dioxide (mEq/L)	20-31	21	5	
Creatine kinase (u/L)	29-168	NA	2,457	

Note: eGFR was estimated using the 4-variable MDRD (Modification of Diet in Renal Disease) Study equation. Conversion factors for units: urea nitrogen in mg/dL to mmol/L, $\times 0.357$; serum creatinine in mg/dL to $\mu\text{mol/L}$, $\times 88.4$.

Abbreviations: eGFR, estimated glomerular filtration rate; NA, not available.

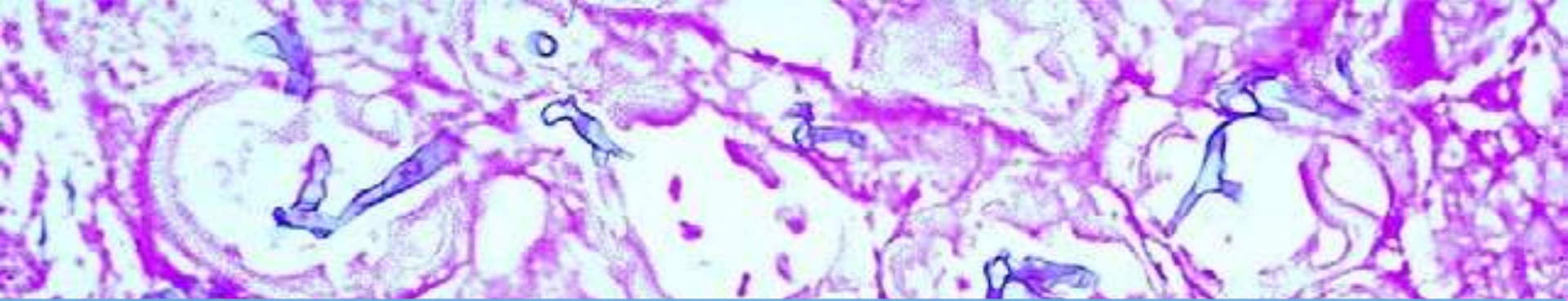


Extreme weakness and AKI

Serum Test	Reference Range	Premorbid Data	Initial Data	Follow-up Data at 6 wk
Urea nitrogen (mg/dL)	0-31	31	91	24
Creatinine (mg/dL)	0-1.11	1.57	13.0	1.67
eGFR (mL/min/1.73 m ²)	>60	40	3	37
Sodium (mEq/L)	135-145	143	138	140
Potassium (mEq/L)	3.5-5.1	5.1	1.8	5.3
Chloride (mEq/L)	98-110	109	105	109
Carbon dioxide (mEq/L)	20-31	21	5	21
Creatine kinase (u/L)	29-168	NA	2,457	120

Note: eGFR was estimated using the 4-variable MDRD (Modification of Diet in Renal Disease) Study equation. Conversion factors for units: urea nitrogen in mg/dL to mmol/L, $\times 0.357$; serum creatinine in mg/dL to $\mu\text{mol/L}$, $\times 88.4$.

Abbreviations: eGFR, estimated glomerular filtration rate; NA, not available.



NDT Plus (2011) 4: 335–338

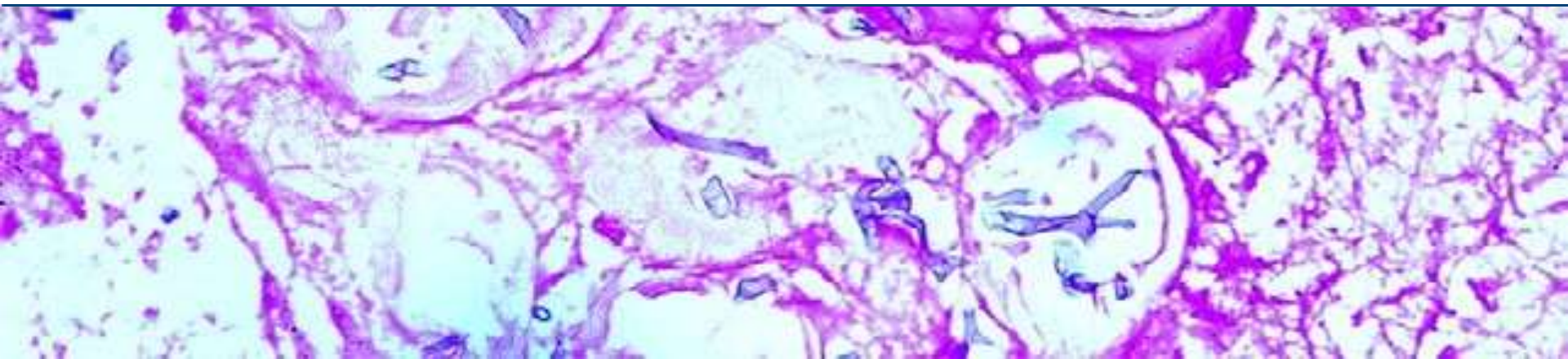
doi: 10.1093/ndtplus/sfr059

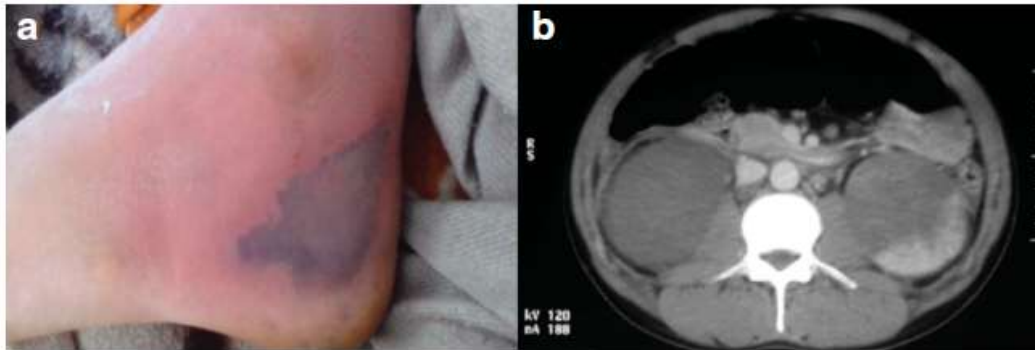
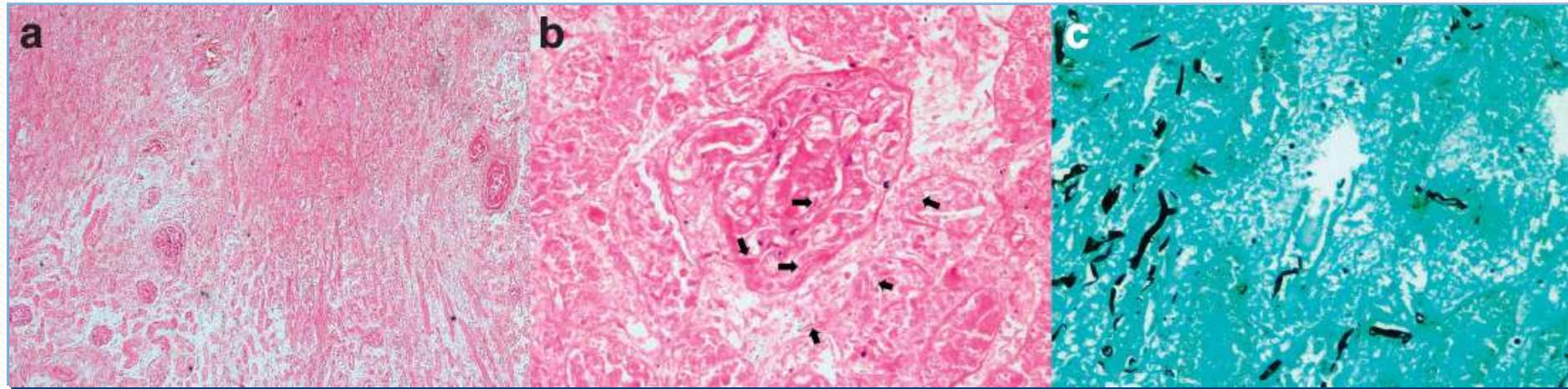
Advance Access publication 30 May 2011

Teaching Point
(Section Editor: A. Meyrier)

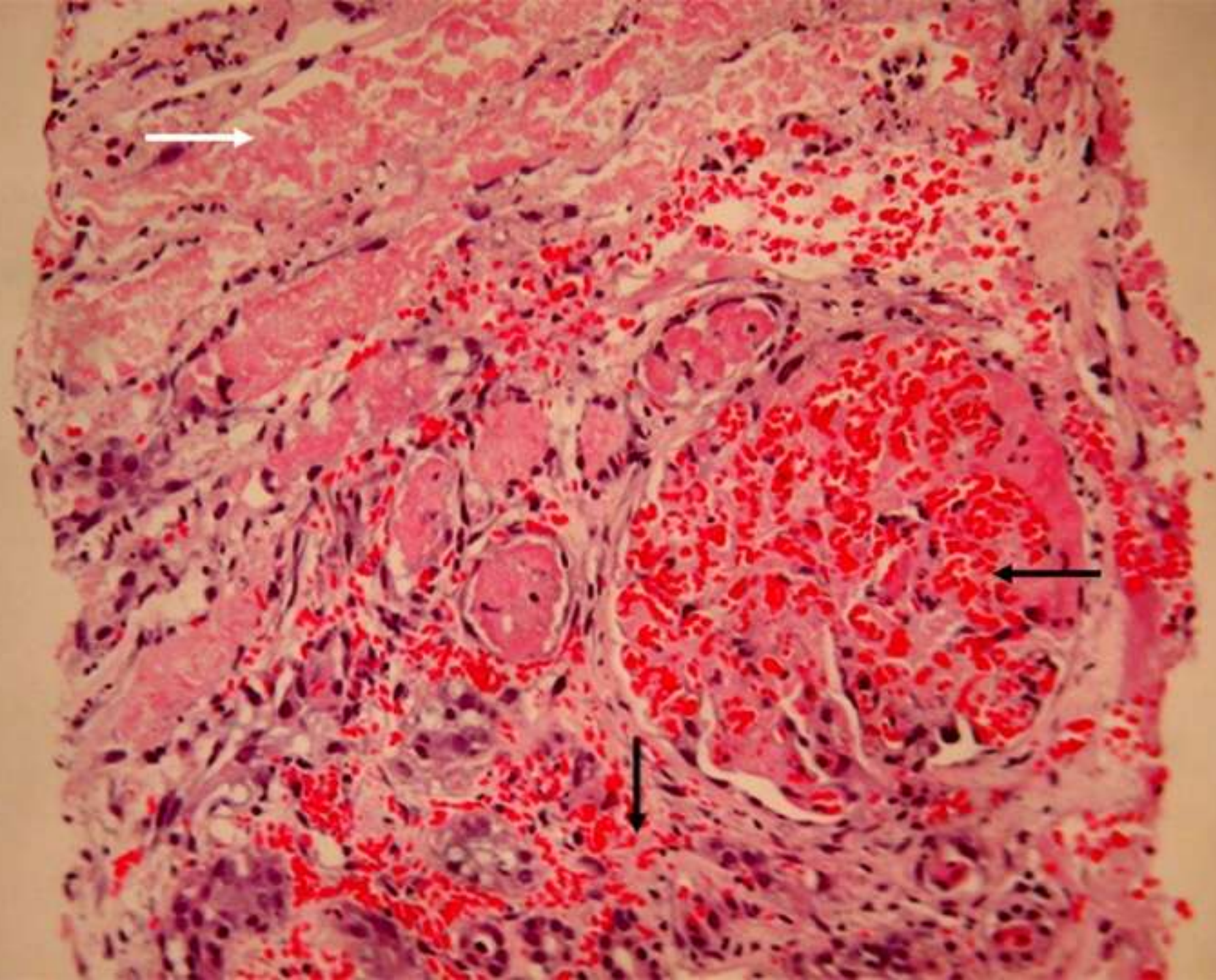
NDT^{PLUS}
Nephrology Dialysis Transplantation

Emerging role of radiological criteria for antemortem diagnosis of renal zygomycosis: an uncommon cause of acute renal failure





Kidney International (2013) 84, 853–854;



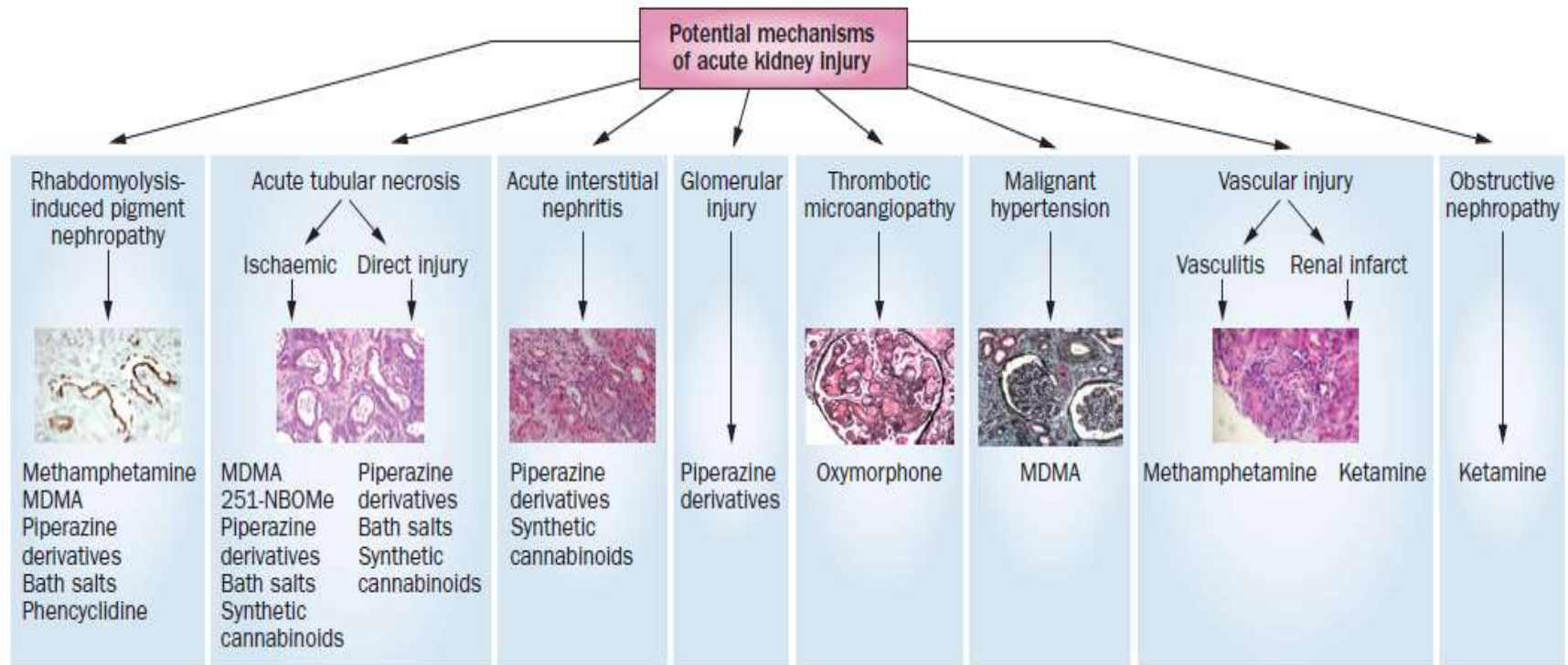
Causes of Renal Cortical Infarction

- Drugs
 - NSAIDs
 - Tranexamic acid
 - Arsenic poisoning
 - Intravenous cocaine
-

Designer Drugs

J Pak Med Assoc. 2009 Mar;59(3):178.

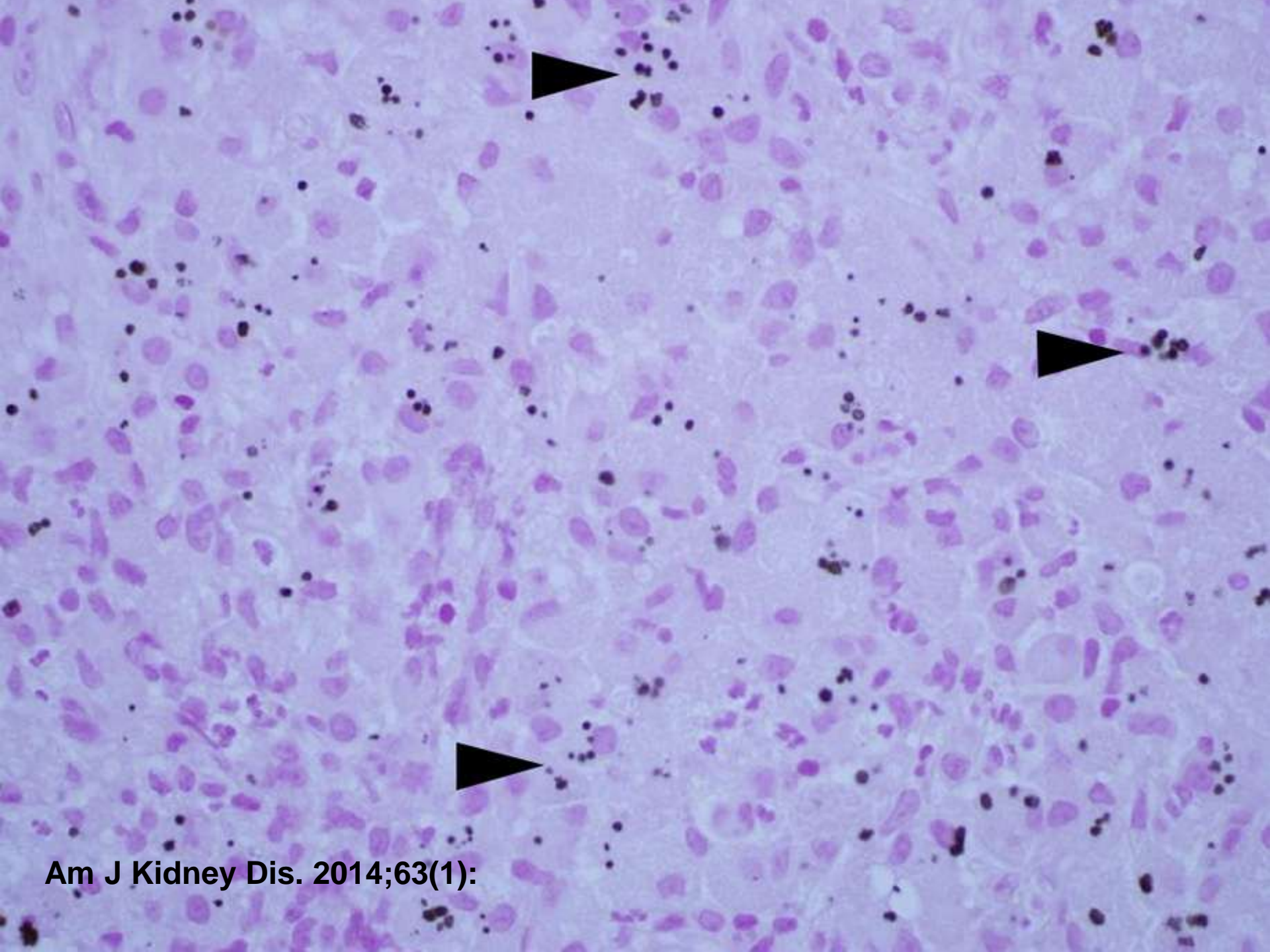
Tramadol overdose induced seizure, dramatic rise of CPK and acute renal failure.



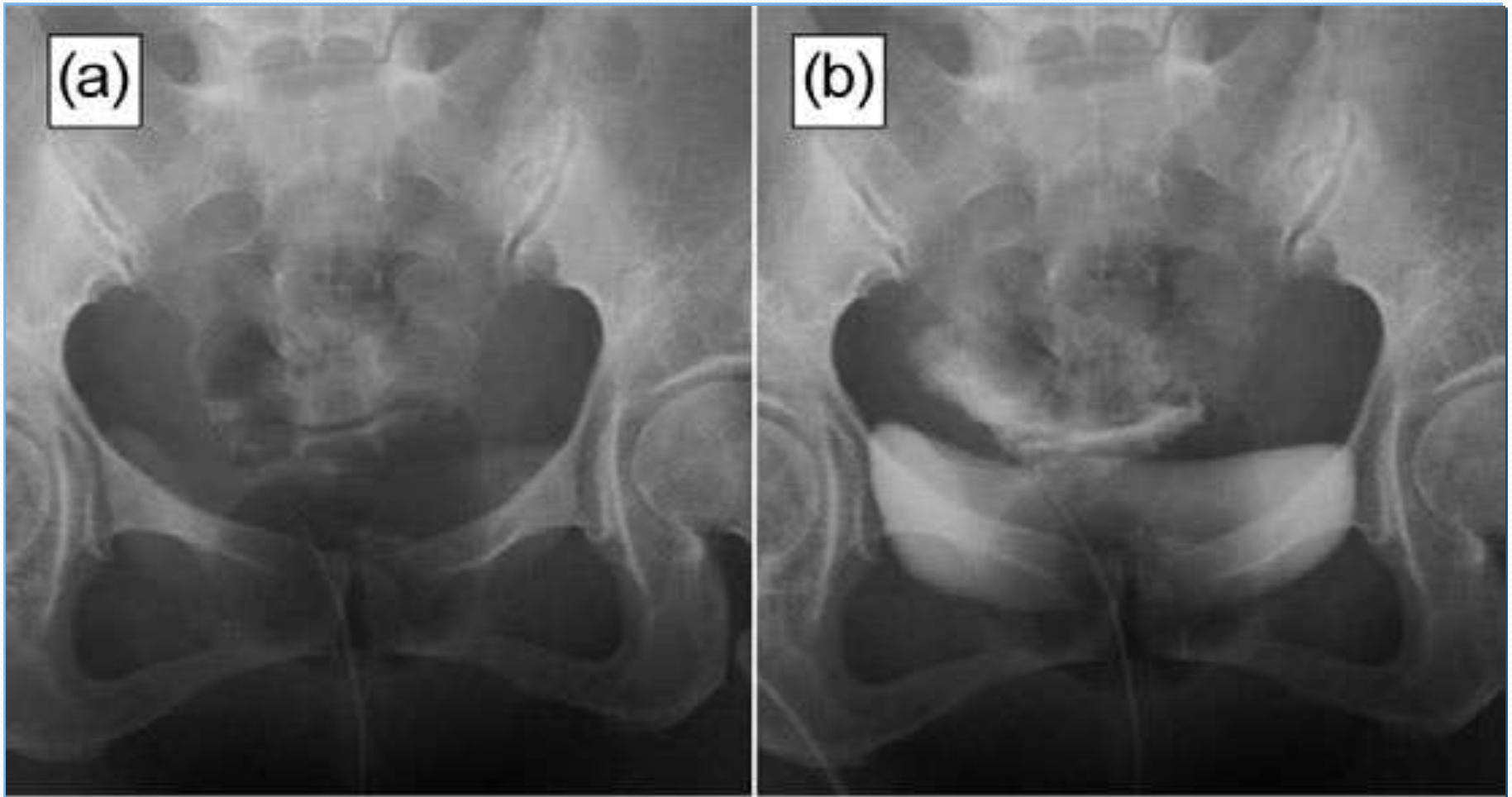
Nat. Rev. Nephrol. 10, 314–324 (2014); published online 25 March 2014

Hypercalcemia and AKI





Ascites, Oliguria and Progressive Rising of serum in A-49-year Lady





معادلة الخوارزمي الرائعة

سئل الخوارزمي عالم الرياضيات عن الإنسان فأجاب :
إذا كان الإنسان ذا أخلاق فهو = 1

محمد بن موسى الخوارزمي



طابع بريدي أصدره الاتحاد السوفيتي عام
1983م في الذكرى 1200 لميلاد
الخوارزمي.

ولادة 164 هـ / 778 م

وفاة 235 هـ / 850 م

مواطنة أصله من خوارزم

